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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|------------------------|---------------------|------------------|
| 10/574,592 | 11/20/2006 | Robert Seth Hartshorne | 57,0534 US PCT | 3968 |
| 370/3 7590 03/22/2010 SCHLUMBERGER-DOLL RESEARCH ATTN: INTELLECTUAL PROPERTY LAW DEPARTMENT P.O. BOX 425045 CAMBRIDGE, MA 02142 | | | | |
| EXAMINER | | | | |
| LI, AIQUN | | | | |
| ART UNIT | | PAPER NUMBER | | |
| 1796 | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/574,592

Applicant(s)

HARTSHORNE ET AL.

Examiner

AIQUN LI

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 January 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 55-82 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 55-82 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/GS/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 21 January 2010 has been entered.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Response to Arguments and Amendments

3. Applicant's arguments in light of the amendments with respect to US patent 6035936 (Whalen) have been considered but are moot in view of the new ground(s) of rejection.
4. Applicant's argument with respect to WO02/064946 (Zhou) have been fully considered but are not persuasive.

Applicant argues that alcohols of Zhou are optional component not used with anionic surfactant. Zhou discloses that isopropanol increases the liquefaction of the surfactant molecules (page 18, line 5-10), wherein the surfactant molecules include

anionic viscoelastic surfactants (page 10, line 28-35). Zhou further exemplifies oleyl alcohol in the fluid of a dimeric oleic acid (Example 5), which is an anionic surfactant.

Applicant further argues that Zhou presents alcohol as reducing viscosity. It is the examiner's position that "reducing" or "enhancing" is a relative term, and the effect of an alcohol on the viscosity of a fluid is an inherent property of that alcohol.

Applicant further argues that the fluid of Example 5 of Zhou is not intended to be injected into a wellbore. Zhou expressly discloses that the viscoelastic fluid for use as a fracturing fluid (page 1, line 1-5), and Example 5 recites "first surfactant", which does not necessarily exclude second surfactant.

Applicant further argues that Zhou does not teach the proportion of alcohol and anionic surfactant. In Example 5, Zhou exemplifies the concentration of oleyl alcohol being 0, 0.05, 0.1, 0.2 or 0.5 wt % , and the anionic surfactant dimeric oleic acid being 4 wt%, which is equivalent to a molar ratio of oleyl alcohol to anionic surfactant of 0, 0.03, 0.05, 0.1, or 0.26 respectively calculated by the examiner.

Claim Rejections - 35 USC § 102

5. **New claims 55-66 and 68-82** are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 6435277 (QU).

Qu teaches a method of fracturing a formation comprises:

providing an aqueous hydraulic fracturing fluid comprising an aqueous medium, an effective amount of a water-soluble salt and a surfactant selected from the group of

surfactants consisting of cationic, anionic, zwitterionic, nonionic and combinations thereof, wherein the surfactants are capable of forming viscosifying worm-like micelles (col.7, line 55-65 and col.29, line 43-46),

pumping the viscous fluid comprising such micelles through the wellbore and into the formation (col.7, line 66-67 and col.8, line 1-5);

Qu further exemplifies the viscosifying surfactants as anionic surfactants (col.20, line 1-45) or a combination of non-ionic and anionic surfactant system (col.19, line 60-63, col.25, line 30-65, col.26, line 1-15, and col.29, line 5-10), wherein the nonionic surfactants include octanol and longer chain aliphatic alcohols, ethylene oxide derivatives of octanol and longer chain aliphatic alcohols, hydroxyl ethers, amine oxide etc (col.25, line 30-48); and the anionic surfactants include aliphatic carboxylic acids such as oleate (col.25, line 50-55 and Examples 22-23), erucyl or tallowyl containing carboxylic acid (col.20, line 1-30), alkylsulfosuccinates, N-acylsarcosinate etc. (col.20, line 41-43).

Qu further teaches that a sufficient quantity of alcohol may optionally be employed to provide desired viscosity under severe conditions (col.26, line 19-21), wherein the alcohols include isopropanol or propylene glycol, which meets the limitation of water miscible nonionic organic compounds.

Qu further discloses that for anionic surfactant with 18 to 24 hydrocarbon, preferred concentration is from 0.5% to 15%, the nonionic surfactant such as octanol can be from 20 to 1% (col.26, line 6-15), which is equivalent to a molar ratio of nonionic surfactant to anionic surfactant of about 0.16 calculated by the examiner based on 15 %

of potassium oleate and 1% of octanol; and the brine concentration is more preferred from zero to 5% (col.26, line 12-14), exemplifying as water (no brine), 2% (Example 26) or 3% (Examples 22-23).

Qu further discloses that the viscous fluids have a viscosity of at least 50 cp at 100 sec^{-1} and bottom hole temperature, and are stable to temperatures in excess of 130°F , preferably at least 150°F , more preferably at least 200°F (col.6, line 45-53). Qu exemplifies the viscosity above 100 cp at 100 sec^{-1} at the temperature from about 125°F to 275°F (Figure 31).

Further, for claim 68, the recitation of "for increasing the temperature at which there is a decrease in viscosity of a wellbore treatment fluid" merely recites the purpose of a process. A recitation of the intended use of the claimed invention must result in a structural difference (or, in the case of process claims, manipulative difference) between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure or process is capable of performing the intended use, then it meets the claim.

6. **New claims 55-58, 60-66, 68-74 and 76-80** are rejected under 35 U.S.C. 102(b) as being anticipated by WO02/064946 (Zhou).

Zhou teaches a method for use in the recovery of hydrocarbons, in particular for use as a fracturing fluid (page 1, line 4-6), comprises providing an aqueous viscoelastic fluid (page 4, line 20-24) comprising a viscoelastic surfactant (page 8, line 29-30) including anionic surfactant (page 9, line 9-10) such as oleate, di- or oligomeric

carboxylates (page 10, line 28-30) including dimeric oleic acid (Examples 5-6), or a compound of the formulae R-X-Y-Z (page 9, line 35 and page 10, line 1), where R is the hydrophobic tail of the surfactant (page 10, line 4), Z is the hydrophilic head group of the surfactant which can be $-\text{SO}_3^-$, $-\text{COO}^-$ (page 10, line 12), X is an acetal, amide ether or ester bond (page 10, line 7-8), Y is a spacer group which is constituted by a short saturated or partially saturated hydrocarbon chain of n carbon atoms where n is at least equal to 1, preferably 2 and, when n is ≥ 3 , it may be a straight or branched alkyl chain (page 10, line 8-12); organic solvents such as isopropanol (page 18, line 8), butanol (page 19, line 11), ethylene glycol (page 19, line 19), oleyl alcohol (page 19, line 19); an amphiphilic compound (page 4, line 32-33) such as ester carboxylates (page 11, line 31) including oleyl ester succinate (Example 6), reverse and forward amide carboxylates such as sacrosinates (page 11, line 34-35); and optionally salts including inorganic salts such as ammonium, sodium or potassium chlorides present in concentrations of 1 to 10 wt% and typically 3 to 4 wt.% (page 18, line 1-10).

Zhou further discloses that the viscoelastic surfactant forms a gel containing worm-like micelles (page 10, line 20-25).

Zhou further exemplifies the concentration of oleyl alcohol being 0, 0.05, 0.1, 0.2 or 0.5 wt %, and the anionic surfactant dimeric oleic acid being 4 wt% (Example 5), which is equivalent to a molar ratio of oleyl alcohol to anionic surfactant of 0, 0.03, 0.05, 0.1, or 0.26 respectively calculated by the examiner.

Additionally, for claim 68, the recitation of "for increasing the temperature at which there is a decrease in viscosity of a wellbore treatment fluid " merely recites the

purpose of a process. A recitation of the intended use of the claimed invention must result in a structural difference (or, in the case of process claims, manipulative difference) between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure or process is capable of performing the intended use, then it meets the claim.

7. **New claim 67** is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Qu.

The teachings of Qu are detailed in the rejection under 35 USC 102(b) of claims 55-66 and 68-82 above.

Additionally, regarding the viscosity limitation, since Qu teaches the same composition and alcohols as claimed, the viscosity of the Qu composition would inherently be the same as claimed. If there is any difference between the product of Qu and the product of the instant claims the difference would have been minor and obvious. "Products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. See MPEP 2112.01(I) , *In re Best*, 562 F2d at 1255, 195 USPQ at 433, *Titanium Metals Corp v Banner*, 778 F2d 775, 227 USPQ 773 (Fed Cir 1985), *In re Ludtke*, 441 F2d 660, 169 USPQ 563 (CCPA 1971) and *Northam Warren Corp v D F Newfield Co*, 7 F Supp 773, 22 USPQ 313 (EDNY 1934).

8. **New Claims 67 and 81-82** are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Zhou.

The teachings of Zhou are detailed in the rejection under 35 USC 102(b) of claims 55-58, 60-66, 68-74 and 76-80 above.

Regarding the viscosity limitation, since Zhou teaches the same viscoelastic composition and alcohols as claimed, the property of the composition such as viscosity would inherently be the same as claimed. If there is any difference between the product of Zhou and the product of the instant claims the difference would have been minor and obvious. "Products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. See MPEP 2112.01(I) , *In re Best*, 562 F2d at 1255, 195 USPQ at 433, *Titanium Metals Corp v Banner*, 778 F2d 775, 227 USPQ 773 (Fed Cir 1985), *In re Ludtke*, 441 F2d 660, 169 USPQ 563 (CCPA 1971) and *Northam Warren Corp v D F Newfield Co*, 7 F Supp 773, 22 USPQ 313 (EDNY 1934).

Where applicant claims a composition in terms of a function, property or characteristic and the composition of the prior art is the same as that of the claim but the function is not explicitly disclosed by the reference, the examiner may make a rejection under both 35 USC 102 and 103. "There is nothing inconsistent in concurrent

rejections for obviousness under 35 USC 103 and for anticipation under 35 USC 102."

See MPEP 2112(III) and *In re Best*, 562 F2d at 1255, 195 USPQ at 433.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AIQUN LI whose telephone number is (571)270-7736. The examiner can normally be reached on Monday -Thursday, 9:30 am - 6:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on (571)2721398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. L./
Examiner, Art Unit 1796

/Timothy J. Kugel/
Primary Examiner, Art Unit 1796